



Jordan River / Utah Lake Watershed Management Unit Water Quality Assessment

Water Quality Inventory

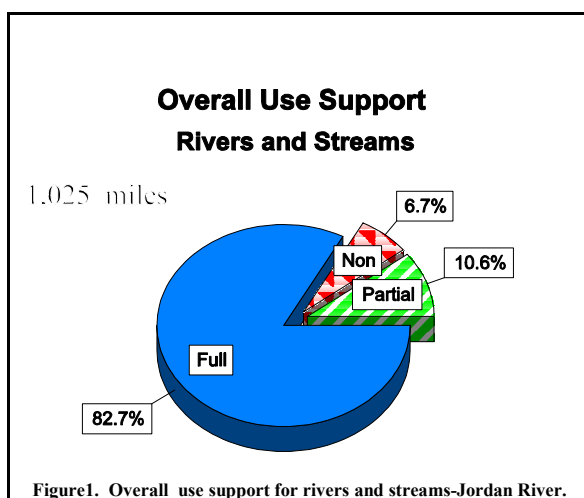
Fall 2002

The Utah Lake-Jordan River Watershed Management Unit lies in north-central Utah and includes those streams that drain into Utah Lake and the Jordan River and its tributaries from Utah Lake to the Great Salt Lake. Samples collected during various periods and various frequencies at eighty monitoring sites from July 1, 1995 to June 30, 2000 within the Utah Lake-Jordan River Watershed Management Unit were used to assess water quality and to determine whether rivers and streams were supporting their designated beneficial uses. Samples were collected at different frequencies depending upon the site and whether the site was part of the Division of Water Quality's (DWQ) cooperative monitoring program. Salt Lake City, the Central Utah Water Conservancy District, and the Jordanelle Technical Advisory Committee were the cooperating agencies.

Samples collected from July 1, 1999 to June 30, 2000 as part of the DWQ intensive monitoring program were collected twice a month during spring run-off and once a month during the rest of the year. No samples were collected in December. The DWQ long-term monitoring sites were collected at the same frequency during the intensive monitoring period, but were only collected eight times per year prior to this survey. Samples collected by the cooperating agencies were generally collected on a monthly basis each year.

In addition to the data obtained from the above monitoring, data collected at four of the United States Geological Survey sites, as part of their National Water Quality Assessment Program (NAWQA) in the Jordan River watershed, were used to assess water quality. Bacteriological data collected by Salt Lake City and Salt Lake County in streams along the Wasatch Front were also used to assess water quality. The U. S. Forest Service provided data on metals in fish tissue from 5 sample locations on the North Fork of the American Fork River. Benthic macroinvertebrate data and sediment data were obtained from Dr. Lawrence Grey, Utah Valley State College, to assess water quality in the Soldier and Thistle Creek watersheds.

Streams were assessed against State water quality standards and pollution indicators to determine if their designated beneficial uses were being met. The streams in the Utah Lake - Jordan River Watershed Management Unit are classified as one of the following or a combination of the following beneficial use classifications: protected as a source of drinking water (1C), secondary contact recreation (2B), cold water game fish (3A), warm water game fish (3B), non-game fish and other aquatic life (3C), other aquatic wildlife (3D), and agricultural use including irrigation and stock watering (4).



There are an estimated 1,314 perennial stream miles within the Utah Lake - Jordan River Watershed Management Unit. One-thousand twenty-five (1,025) miles (78.0%) were

assessed for support of their designated beneficial uses (Figure 1). Of these, 848.5 (82.7%) miles were determined as fully supporting all their beneficial uses, 108.3 (10.6%) miles were assessed as partially supporting, and 68.4 (6.7%) miles were assessed as not supporting at least one designated beneficial use. The Class 2B, contact recreation, beneficial use assessment was done primarily using physical/chemical data and were not considered fully assessed unless bacteriological data were also collected.

Individual beneficial use is listed in Table 1. The relative impact of causes and sources are found in Figures 2 and 3 respectively. The overall beneficial use support of streams is presented in Figure 4 along with the monitoring sites sampled for this assessment.

One-thousand twenty-five (1,025) stream miles were assessed for aquatic life use support. This was 81.2% of the estimated stream miles that were classified for this beneficial use. Of the streams assessed for aquatic life, 854 miles (83.3%) were assessed as fully supporting, 102.7 miles (10.0%) partially supporting this beneficial use and 68.4 miles (6.7%) were listed as being non supporting

Of the 923 stream miles assessed for agricultural use, 899 miles (97.4%) were assessed as fully supporting, 24.2 miles (2.6%) were assessed as partially supporting and no stream miles were assessed as not supporting the agricultural beneficial use.

Table 1. Individual Use Support Summary for the Utah Lake - Jordan River Watershed Management Unit (Stream Miles).							
Goals ^a	Use	Size Assessed	Size Fully Supporting	Size Fully Supporting but Threatened	Size Partially Supporting	Size Not Supporting	Size Not Attainable
Protect & Enhance Ecosystems	Aquatic Life	1,025.2	854.1 (83.3%)	0.0 (0.0%)	108.3 (10.0%)	68.4 (6.7%)	0.0 (0.0%)
Protect & Enhance Public Health	Fish Consumption	5.6	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	5.6 (100%)	0.0 (0.0%)
	Swimming ^b	101.3	81.7 (80.7%)	0.0 (0.0%)	29.8 27.3%	0.0 (0.0%)	0.0 (0.0%)
	Secondary Contact	101.3	81.7 (80.7%)	0.0 (0.0%)	29.8 27.3%	0.0 (0.0%)	0.0 (0.0%)
	Drinking Water	402.6	402.6 (100%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)
Social and Economic	Agricultural	923.2	899.0 (97.4%)	0.0 (0.0%)	24.0 (2.6%)	0.0 (0.0%)	0.0 (0.0%)
	Total	1,025.4	848.5 (82.7%)	0.0 (0.0%)	108.3 (10.6%)	68.4 (6.75)	0.0 (0.0%)

a - These goals are part of the national water quality goals adopted by the EPA Office of Water and the ITFM in their Environmental Goals and Indicators effort.

b - Class 2B (secondary contact) streams were evaluated as swimmable for purposes of the CWA goals, therefore the swimming and secondary contact classification categories are the same.

No water quality impairments were found when waters classified as 1C (protected as a source of drinking water) were assessed. Of the streams for which there were fecal coliform data available, only one was impaired for contact recreation (Class 2B) because of high concentrations of fecal coliforms.

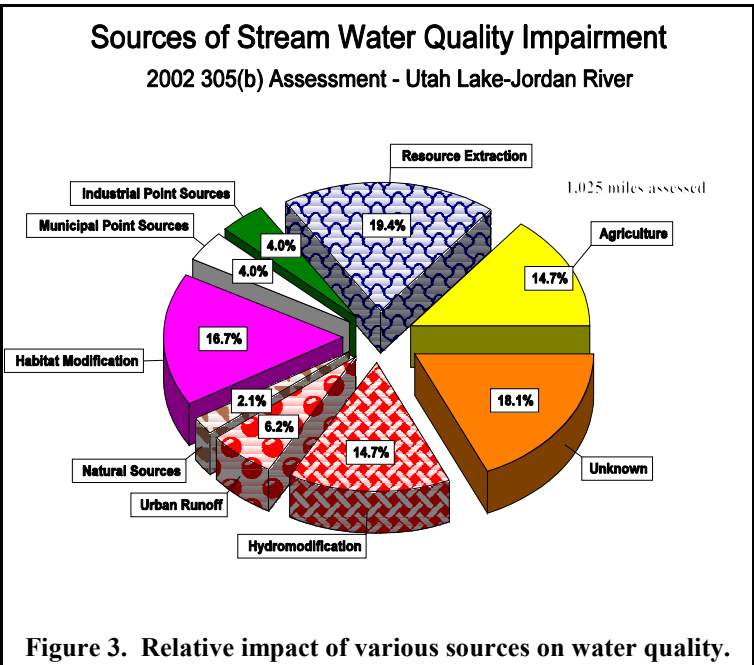
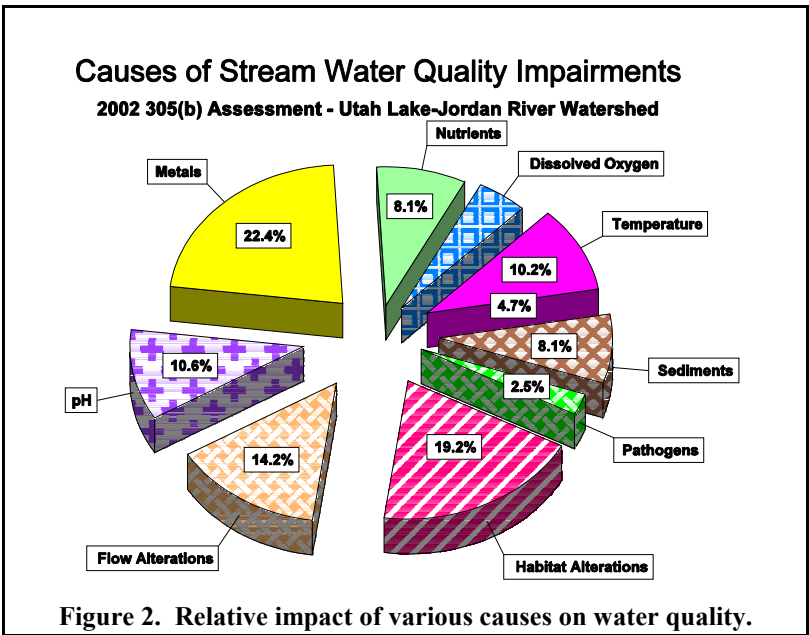
Major Causes of Impairment

The major causes of impairment were metals, habitat alterations, flow alterations and pH. The major sources of impairment were resource extraction, habitat modification, hydromodification, and agricultural activities. Urban storm-water runoff is considered a significant source of organic loading that creates a large oxygen demand in the lower parts of the Jordan River that causes the oxygen level in the stream not to meet State standards.

Waters Not Meeting Standards

The Jordan River from Farmington Bay upstream to North Temple was assessed as impaired because of low dissolved oxygen.

Emigration Creek and its tributaries were found not supporting its secondary contact recreation designation because of high concentrations of fecal coliforms. Potential sources for the fecal coliforms are natural sources and septic tanks. Further work needs to be done in this watershed to determine the sources of the fecal coliforms. Little Cottonwood Creek and its tributaries, upstream from the water treatment plant to its headwaters, were impaired because of potential effects of zinc on aquatic life in the stream. The North Fork of the American Fork River above Tibble Fork Reservoir was impaired because of high levels of arsenic found in fish tissue samples. The Utah Department of Health, Utah Department of Environmental Quality, and the Utah County Health Department have issued a fish consumption advisory for this river. Historical mining activities, mine drainage and tailings, are the sources of metals in Little Cottonwood Creek and the North Fork of the American Fork River.



Violations of the State’s temperature standards for aquatic life occurred in the Jordan River from Bluffdale to the Narrows, and Currant Creek, downstream from Mona Reservoir causing them to be listed as impaired.

Evaluation of water chemistry, sediment, and benthic macroinvertebrate data indicated that Soldier Creek, from its confluence with Thistle Creek upstream to the point where Starvation Creek enters Soldier Creek, was impaired because of excessive sedimentation and phosphorus. Diamond Fork River and its tributaries from its confluence with the Spanish Fork River were impaired because of flow alterations and habitat degradation. This is caused by the excess amounts of water that are diverted into the stream from Strawberry Reservoir. Sixth Water Creek, a tributary to Diamond Fork River was affected by this also. When the Diamond Fork

pipeline project is completed, water will be piped downstream to the Spanish Fork River. When this occurs, it is expected that these streams can be rehabilitated and support their aquatic life beneficial use designation.

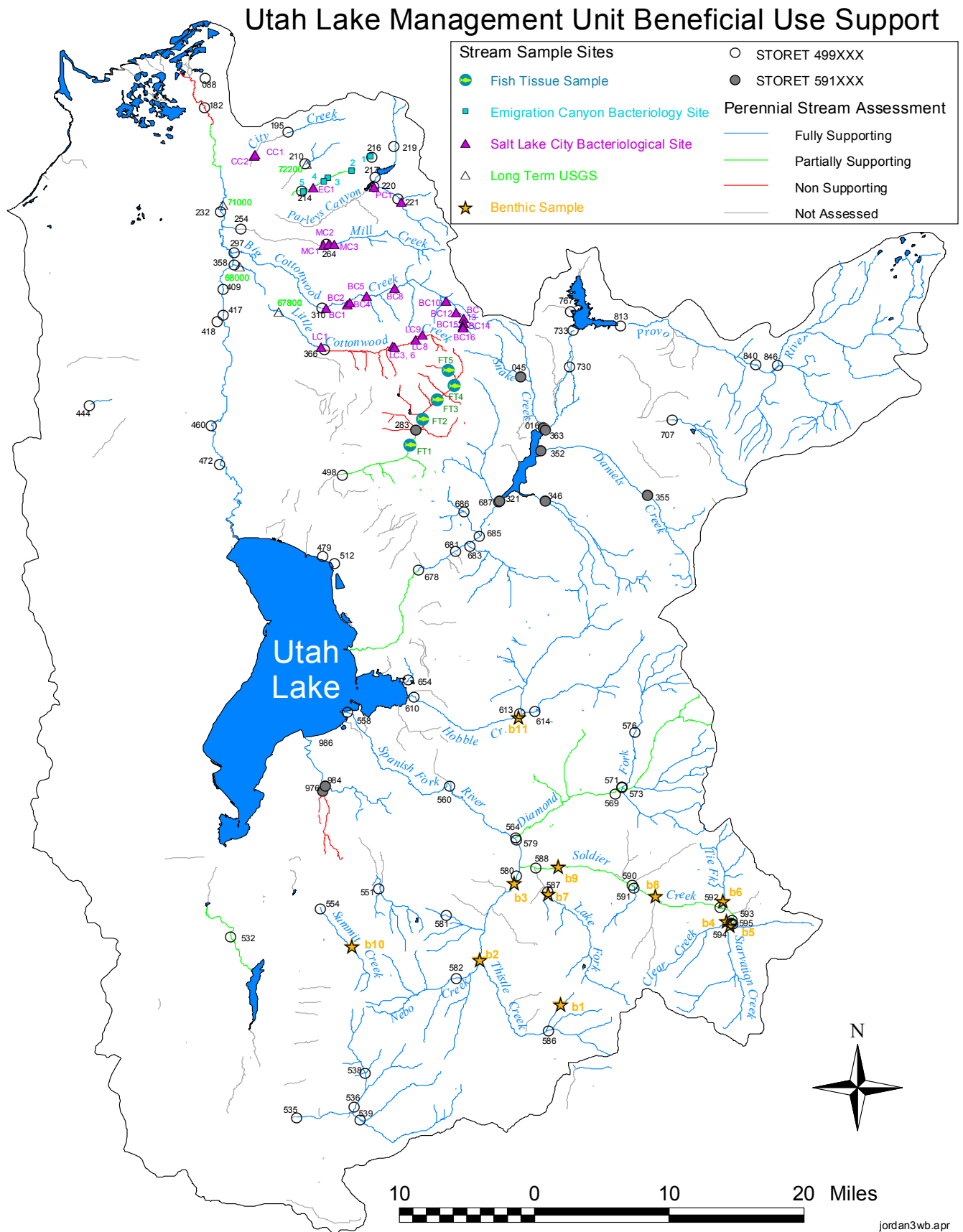


Figure 4. Overall beneficial use assessment for the Jordan River-Utah Lake watershed-2002 305(b) report.

